CLAIMS

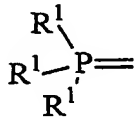
1. An isomerization process comprising the step of contacting a slurry or a solution comprising the meso or meso-like form of one or more bridged metallocene compounds of group 4 of the Periodic Table of the Elements having C_2 or C_2-like symmetry with an isomerization catalyst of formula (I)

$$[R_4W]^+X^- \quad (I)$$

wherein:

W is a nitrogen or a phosphorus atom;

R, equal to or different from each other, are C_1-C_{40} hydrocarbon radicals optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; two R can also join to form a saturated or unsaturated C_5-C_6 membered cycle containing the atom W or two R can also join to form a radical of formula (II)



(II)

wherein R^1, equal to or different from each other, are C_1-C_{20} hydrocarbon radicals optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; P is a phosphorous atom bonded with a double bond to the atom W; and

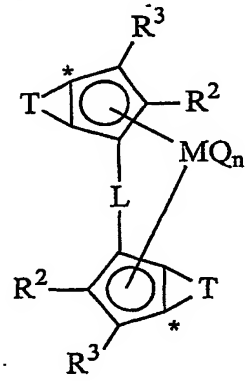
X^- is an halide atom.

2. The isomerization process according to claim 1 wherein a mixture comprising the meso or meso-like form and the racemic or racemic-like form of one or more bridged metallocene compounds of group 4 of the Periodic Table of the Elements having C_2 or C_2-like symmetry is used.

3. The isomerization process according to claims 1-2 wherein R are linear or branched, cyclic or acyclic, C_1-C_{40}-alkyl, C_2-C_{40} alkenyl, C_2-C_{40} alkynyl, C_6-C_{40}-aryl, C_7-C_{40}-alkylaryl or C_7-C_{40}-arylalkyl radicals, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; two R can also join to form a saturated or unsaturated C_5-C_6 membered cycle containing the atom W; and X^- is chloride (Cl^-) or bromide (Br^-).

4. The isomerization process according to anyone of claims 1-3 wherein W is a nitrogen atom.

5. The isomerization process according to anyone of claims 1-4 wherein the process is carried out in an aprotic solvent, either polar or apolar.
6. The isomerization process according to claim 5 wherein the aprotic solvent is an aromatic or aliphatic hydrocarbon, optionally halogenated or optionally containing heteroatoms belonging to the group 16 of the periodic table, or an ether.
7. The isomerization process according to claim 6 wherein the process is carried out in the presence of one or more ethers.
8. The isomerization process according to anyone of claims 1-7 wherein the process is carried out at a temperature ranging from 0 to a temperature below the temperature of decomposition of the bridged metallocene compound in the selected solvent.
9. The isomerization process according to anyone of claims 1-8 wherein the bridged metallocene compounds having C_2 symmetry or C_2-like symmetry has formula (III)



(III)

wherein:

M is a transition metal belonging to group 4,

the substituents Q, equal to or different from each other, are monoanionic sigma ligands selected from the group consisting of hydrogen, halogen, R^8, OR^8, $OCOR^8$, SR^8, NR^8_2 and PR^8_2, wherein R^8 is a linear or branched, cyclic or acyclic, C_1-C_{20}-alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_6-C_{20}-aryl, C_7-C_{20}-alkylaryl or C_7-C_{20}-arylalkyl radical optionally containing one or more Si or Ge atoms;

or two Q can optionally form a substituted or unsubstituted butadienyl radical or a $OR'O$ group wherein R' is a divalent radical selected from C_1-C_{20} alkylidene, C_6-C_{40} arylidene, C_7-C_{40} alkylarylidene and C_7-C_{40} arylalkylidene radicals;

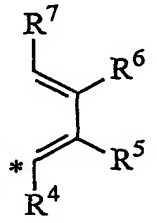
n is an integer equal to the oxidation state of the metal M minus 2;

L is a divalent bridging group selected from C_1-C_{20} alkylidene, C_3-C_{20} cycloalkylidene,

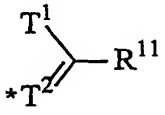
C_6-C_{20} arylidene, C_7-C_{20} alkylarylidene, or C_7-C_{20} arylalkylidene radicals optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, and silylidene radical containing up to 5 silicon atoms;

R^2, R^3, equal to or different from each other, are hydrogen atoms, halogen atoms or linear or branched, cyclic or acyclic, C_1-C_{20}-alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_6-C_{20}-aryl, C_7-C_{20}-alkylaryl or C_7-C_{20}-arylalkyl radicals, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

T, equal to or different from each other, is a moiety of formula (IIIa) or (IIIb):



(IIIa)



(IIIb)

wherein:

the atom marked with the symbol * bonds the atom marked with the same symbol in the compound of formula (III);

T^1 is a sulphur atom, a oxygen atom or a CR^{10}_2 or a NR^{12} group, wherein R^{10}, equal to or different from each other, are hydrogen atoms, halogen atoms or linear or branched, cyclic or acyclic, C_1-C_{20}-alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_6-C_{20}-aryl, C_7-C_{20}-alkylaryl or C_7-C_{20}-arylalkyl radicals, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; and R^{12} is a or linear or branched, cyclic or acyclic, C_1-C_{20}-alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_6-C_{20}-aryl, C_7-C_{20}-alkylaryl or C_7-C_{20}-arylalkyl radical, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

T^2 is a CR^{10} group or a nitrogen atom; wherein R^{10} is a hydrogen atom, a halogen atom or linear or branched, cyclic or acyclic, C_1-C_{20}-alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_6-C_{20}-aryl, C_7-C_{20}-alkylaryl or C_7-C_{20}-arylalkyl radical, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

with the proviso that if T^2 is a nitrogen atom T^1 is CR^{10}_2;

R^4, R^5, R^6, R^7, and R^{11}, equal to or different from each other, are hydrogen atoms, halogen atoms or linear or branched, cyclic or acyclic, C_1-C_{20}-alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_6-C_{20}-aryl, C_7-C_{20}-alkylaryl or C_7-C_{20}-arylalkyl radicals, optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; or two adjacent R^4, R^5, R^6, R^7, R^{10} and R^{11} form one or more 3-7 membered ring optional containing heteroatoms belonging to groups 13-17 of the periodic table.

10. The isomerization process according to claim 9 wherein in the compound of formula (III) M is zirconium, or hafnium; the substituents Q are the same and are halogen atoms, R^8, OR^8 and NR^8_2; wherein R^8 is preferably a C_1-C_{10} alkyl, C_6-C_{20} aryl or C_7-C_{20} arylalkyl group, optionally containing one or more Si or Ge atoms; L is a divalent group $(ZR^9_m)_q$; Z being C, Si, Ge, N or P, and the R^9 groups, equal to or different from each other, being hydrogen or a linear or branched, cyclic or acyclic, C_1-C_{20}-alkyl, C_2-C_{20} alkenyl, C_2-C_{20} alkynyl, C_6-C_{20}-aryl, C_7-C_{20}-alkylaryl or C_7-C_{20}-arylalkyl radicals or two R^9 can form a aliphatic or aromatic C_4-C_7 ring.

11. The isomerization process according to claims 9-10 wherein in the compound of formula (II) R^2 and R^{11}, equal to or different from each other are linear or branched C_1-C_{20}-alkyl radicals; R^4 and R^{10}, equal to or different from each other, are hydrogen atoms or C_6-C_{20}-aryl, or C_7-C_{20}-arylalkyl radicals; T^1 is sulphur and T^2 is a CR^{10} group.